

ABSTRACT

The present invention relates to a gas pressure regulator including an electrochemical cell (4) having a first electrode (1) for decomposing gas into ions, a second electrode (2) for converting the ions generated in the first electrode (1) into the gas again and an ion conductor (3) sandwiched in between both the electrodes (1) and (2); and a high pressure vessel (5) disposed in one side of the electrochemical cell (4). In this device, the gas is decomposed into the ions in the first electrode (1). The decomposed ions are allowed to pass through the ion conductor (3) sandwiched in between the first electrode (1) and the second electrode (2) and conducted to the second electrode (2) side. The conducted ions are reconverted into the gas in the second electrode (2).